



VADDIO™ POWERVIEW™ HD-22 QSR AND POWERVIEW HD-30 QSR CAMERA SYSTEMS

PowerVIEW Series High Definition PTZ Cameras featuring the Quick-Connect™ SR Interface

PowerVIEW HD-22 QSR - High Definition PTZ Camera System (22X Optical Zoom)

Model Number 999-6965-000 (North America)

Model Number 999-6965-001 (International)

PowerVIEW HD-30 QSR - High Definition PTZ Camera System (30X Optical Zoom)

Model Number 999-6975-000 (North America)

Model Number 999-6975-001 (International)



PowerVIEW 22/30 with CONCEAL Mount

Quick-Connect SR Interface

Part Number: 998-1105-016





Inside Front Cover - Very Blank



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OVERVIEW

The impressive Vaddio PowerVIEW HD-22 and HD-30 high definition PTZ cameras are available in the versatile Vaddio PowerVIEW QSR (short range) package. The PowerVIEW HD-22 QSR and the PowerVIEW HD-30 QSR feature 22X and 30X power zoom optics respectively. These cameras use a 1MOS, 1/2.8-Type, progressive scan image sensors, which provide for better light sensitivity, increased noise reduction and lower power consumption than cameras with either CCD or CMOS image sensors. This advanced MOS image sensor captures vivid colors, delicate gradation and realistic textures that are comparable to 3-chip camera performance.

Both the HD-22 and the HD-30 provide matchless low-light capabilities with a minimum illumination rating of an amazing 0.4 lux (color) and 0.3 lux (B/W). Equipped with a 2.2 megapixel MOS sensor, the cameras deliver native 1080p/60 high definition video resolution and superior color reproduction for use in any professional A/V presentation, videoconferencing, House of Worship, education, live event and industrial applications.

The HD-22 has a powerful 22X multi-element glass zoom lens (f=4.3mm to 94.6mm) and works exceptionally in large rooms. However, the premium optics also provides a super-wide horizontal field of view of 65.2°, which works very well in small room video applications. The HD-30, as one can imagine, has a robust 30X optical power zoom lens that enables the capture of brilliant and detailed video images even in the largest rooms.

The cameras output multi-format HD video in both analog component (YPbPr), HDMI and differential formats in HD resolutions of 1080p/59.94, 1080p/50 1080p/29.97 1080p/25, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 and SD resolutions of 480p/59.97 and 576p/50. Both cameras are offered in PowerVIEW QSR packages with the Quick-Connect SR Interface, which uses HSDS™ for distribution of video, power and control over Cat-5 cable up to 100' (30.48m). The PowerVIEW HD-22 and HD-30 cameras represent an exceptional value and are superb performers for the most demanding video applications.

Intended Use:

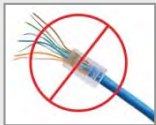
Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors with the power supply provided. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the device and/or create a potentially unsafe operating condition.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions.



Use only the power supply provided with the system. Use of any unauthorized power supply will void any and all warranties.



Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up, and/or compromising the HSDS (high speed differential) signals. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use and connection to Vaddio product.

Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.



Image: PowerVIEW HD22 or HD-30 QSR System with the CONCEAL Mount for and a clean installation.

UNPACKING

Carefully remove the product and all of the included parts from the packaging. Identify the following parts for each camera:

PowerVIEW HD-22 QSR Camera System (North America):

Part Number: 999-6965-000

- One (1) PowerVIEW HD-22 HD PTZ Camera (998-6960-000)
- One (1) Vaddio IR Remote Commander
- One (1) Quick-Connect SR Interface
- One (1) 3-Position Phoenix-type Connector for IR Forwarding
- One (1) 24 VDC, 2.0 A Power Supply with Power Cord for North America
- One (1) CONCEAL Wall Mount with Mounting Hardware
- One (1) EZCamera™ Control Adapter (RJ-45-F to DB-9-F)
- Quick Start Guide

Full Manuals are downloaded from support.vaddio.com



PowerVIEW HD-22 QSR Camera System (International):

Part Number: 999-6965-001

- One (1) PowerVIEW HD-22 HD PTZ Camera (998-6960-000)
- One (1) Vaddio IR Remote Commander
- One (1) Quick-Connect SR Interface
- One (1) 3-Position Phoenix-type Connector for IR Forwarding
- One (1) 24 VDC, 2.0 A Power Supply
- One (1) Euro Power Cable
- One (1) UK Power Cable
- One (1) CONCEAL Wall Mount with Mounting Hardware
- One (1) EZCamera Control Adapter (RJ-45 to DB-9)
- Quick Start Guide

Full Manuals are downloaded from support.vaddio.com



PowerVIEW HD-30 QSR Camera System (North America):

Part Number: 999-6975-000

- One (1) PowerVIEW HD-30 HD PTZ Camera (998-6970-000)
- One (1) Vaddio IR Remote Commander
- One (1) Quick-Connect SR Interface
- One (1) 3-Position Phoenix-type Connector for IR Forwarding
- One (1) 24 VDC, 2.0 A Power Supply with Power Cord for North America
- One (1) CONCEAL Wall Mount with Mounting Hardware
- One (1) EZCamera Control Adapter (RJ-45-F to DB-9-F)
- Quick Start Guide

Full Manuals are downloaded from support.vaddio.com



PowerVIEW HD-30 QSR Camera System (International):

Part Number: 999-6975-001

- One (1) PowerVIEW HD-30 HD PTZ Camera (998-6970-000)
- One (1) Vaddio IR Remote Commander
- One (1) Quick-Connect SR Interface
- One (1) 3-Position Phoenix-type Connector for IR Forwarding
- One (1) 24 VDC, 2.0 A Power Supply
- One (1) Euro Power Cable
- One (1) UK Power Cable
- One (1) CONCEAL Wall Mount with Mounting Hardware
- One (1) EZCamera Control Adapter (RJ-45 to DB-9)
- Quick Start Guide

Full Manuals are downloaded from support.vaddio.com



CONCEAL Mount includes:

- Metal Bracket,
- Bottom Cover
- Rear Connector/Cable Cover
- Mounting Hardware

Camera Front View with Feature Call-outs

Image: PowerVIEW HD-22/30 QSR Camera System



1) Camera and Zoom Lens:

The 22X (HD-22) or 30X (HD-30) optical zoom lens is built around a (1/2.8 Type) high-speed MOS image sensor with a total of 2.2 megapixels for precise HD video image acquisition.

2) Red Tally Light:

A red tally light is illuminated when the camera receives a command from an external controller.

3) IR Sensors:

IR sensors are built into the front of the HD-22 and HD-30 to receive IR signals from the IR remote control supplied with the camera.

4) Blue Power Light:

A Vaddio blue power light is illuminated when the camera is turned on.

Rear Panel Connections with Feature Call-outs
Image: PowerVIEW HD-22/30 QSR Camera System



5) RS-232 IN & IR Out:

The RS-232 port accepts modified VISCA protocol for camera control, as well as transmits IR signaling received by the IR receivers, which can be transmitted to third party remotes.

6) Dip Switch Settings:

Settings for IR remote, baud rate and image flip can be configured on these switches. See the Switch Settings page for additional information.

7) HD Video Select:

A rotary switch allows the user to choose the component HD output video resolution and format. See the Switch Settings page for additional information.

- **HD Resolution Note:** When changing the resolution of the camera, the camera may need to be power-cycled after the change. Pretty much every switcher will have to be reset or rebooted as well.

8) 12 VDC Input:

Power input for the standard HD-22 and HD-30 camera power supply (not used with QSR Kit).

9) HDMI Output:

The HDMI output feeds out HD digital video only (no copy protect or device communication is included). The HDMI output is optimized for HD video signals.

10) YPbPr Output:

Component HD video (YPbPr) is output through the DE-15 connector. YPbPr and HDMI signals are simultaneous. Limited SD resolutions are supported.

11) EZ Power/Video Port:

This RJ-45 connector is used with the Quick-Connect SR Interface to supply power and return HSDS (differential) video from the camera. Please mark and test cables for voltage prior to connection (see pin-out section).

12) Slot for Optional Cards:

The EZIM CCU slot card for the CCU can be plugged into the PowerVIEW HD-22 HD camera.

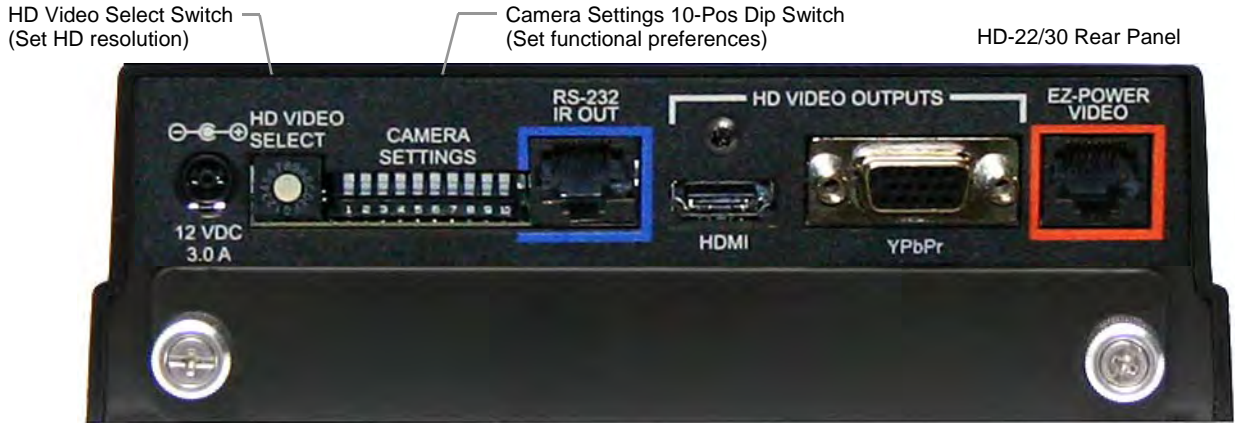
FIRST TIME SET-UP WITH THE POWERVIEW HD-22 OR HD-30 QSR SYSTEMS

The PowerVIEW HD-22 and HD-30 cameras in the QSR system were designed to be very easy to use and operate. There is documentation at the back of this manual for pin-outs of the connectors.

Step 1: Using the HD VIDEO SELECT rotary switch and CAMERA SETTINGS dip switches on the back of the camera, set up the camera's output resolution and functional preferences. There is a label on the bottom of the camera that identifies the choices.

Important Dip Switch Note: Setting all dip switches down and power cycling the camera will load the factory default camera settings. For the first time set-up, loading the defaults may be a good idea.

Image: PowerVIEW HD-22/30 Rear Panel Connections



Drawing: Dip Switch and Resolution Label on the Bottom of the HD-22/30

DIP SWITCH SETTINGS										VIDEO RESOLUTION SELECT			
IR 1 1 & 2 UP	IR OUT OFF	9600 bps	5 OFF	6 OFF	HDMI COLOR YCbCr	IMAGE FLIP OFF	9 OFF	10 OFF	0	720p/59.94	8	576p/50	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1080i/59.94	9	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	1080p/59.94	A	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	---	B	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	720p/50	C	---	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	1080i/50	D	---	
IR 2 ON	IR 3 ON	38400 bps	---	---	sRGB	ON	---	---	6	1080p/50	E	1080p/29.97	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7	480p/59.94	F	1080p/25	
1	2	3	4	5	6	7	8	9	10				

Setting the Camera:

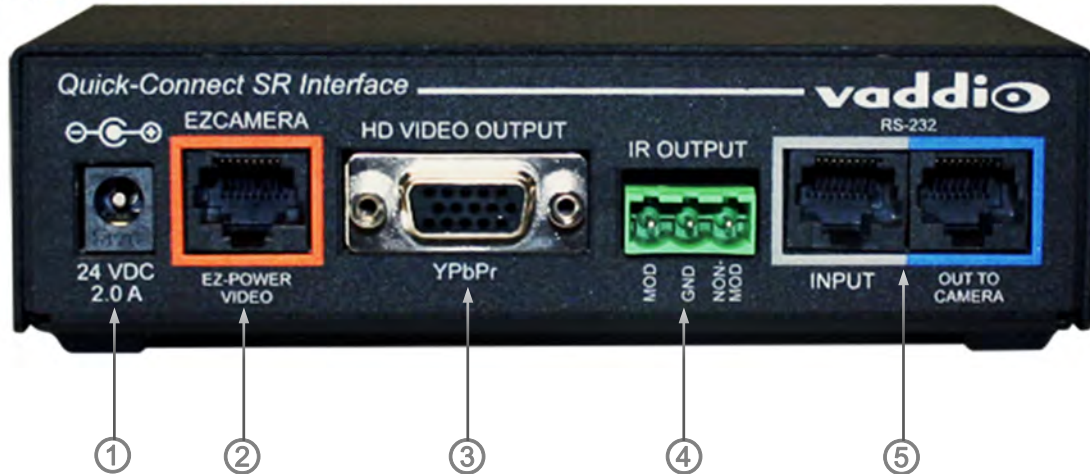
- Set the desired and available HD output resolution for the camera with the Rotary Switch.
- Set the IR frequency of the camera if it is to respond to the IR remote control.
- If using the IR forwarding feature, set the IR OUT switch to ON (SW3).
- Set the Baud Rate dip switch (SW4) to 9600bps for most applications. Default for is 9600bps.
- To set the HDMI or DVI color space, use dip switch 7 (SW7).
- If inverting the camera, turn the IMAGE FLIP ON (SW8).

Dip Switch Settings:

- IR 1 & 2:** The IR remote has the capability of operating up to three different PTZ cameras from one remote. Use the selector buttons at the top of the IR remote to select the frequency.
- IR Out 3:** The IR output is sent out on the RS-232 RJ-45 jack on the back of the camera. Turning on the IR output will allow IR signals to be transmitted over the Cat-5 cable to the head end. When using RS-232 control or Vaddio CCU controllers (also via RS-232), turn the IR OUT to OFF (up).
- Baud Rate 4:** The options for baud rate are either 9600 bps or 38,400 bps.
- HDMI Color or sRGB Color space 7:** Default is YCbCr. Use sRGB color space with older DVI-D 1.0 monitors only. The YCbCr color space is best for HDMI digital video.
- Image Flip 8:** To invert the HD-20, turn the IMAGE FLIP ON (switch down).
- Switches 9 and 10:** Leave up - or in the OFF position.

QUICK-CONNECT SR INTERFACE

Image: Rear Panel with Feature Call-outs



1) Power Input:

5.5mm OD x 2.5mm ID coaxial connector for the provided 24 VDC, 2.0 Amp switching power supply.

2) EZ-POWER VIDEO Port (Color Coded Orange):

A single Cat-5 connection between the EZCAMERA POWER & HD VIDEO RJ-45 connector and the camera's EZ Power HD Video Port on the HD-19 camera extends power and video. Power is fed to the camera and HSDS video is returned from the camera on the same Cat-5.

3) HD Video Output:

DE-15 connector outputs the YPbPr analog component HD video, which was extended from the camera over Cat-5 cable. SD video resolutions (Y/C and CVBS formats) are not supported by the Quick-Connect SR Interface, however analog component SD (high fps format - 480p/59.94 and 576p/50) video is supported.

4) IR Output:

With the IR pass-thru turned ON (see camera dip switch settings), IR from third-party IR remote controls can be sent through the camera to third-party equipment, such as hardware videoconferencing codecs. IR can be used as either modulated (through the air) or non-modulated (wired) signals).

5) RS-232 INPUT (Color Coded Grey) and OUT TO CAMERA (Color Coded Blue) Jacks:

These RJ-45 connectors allow an external controller (look-out for upcoming shameless plug) like the ProductionVIEW™ Precision Camera Controller to route through the Quick-Connect SR for ease of cable routing.

Before Installing:

- Choose camera mounting location, paying close attention to camera viewing angles, lighting conditions, possible line of site obstructions, and checking for in-wall obstructions where the camera is to be mounted. Always pick a mounting location that will optimize the performance of the camera.
- The wall mount for the PowerVIEW system can be mounted directly to a 2-gang wall box or can be mounted using only dry wall anchors.
- For Power/Video and RS-232 signals, use standard Cat-5 cable (568B termination with real RJ-45 connectors) from the EZ-POWER VIDEO and RS-232 ports on the back of the camera to the Quick-Connect SR Interface (see install instructions).



INSTALLATION BASICS:

The PowerVIEW QSR system was specifically designed for installation on a vertical surface with Cat-5 cable connectivity for Video, Power and Control signaling (two Cat-5 cables are required). Installation is simplified in that no custom 8-Pin mini-din cables or expensive plenum coax cables or multi-pin cables are needed and no power outlets are required near the camera bracket. All cabling is routed to the head-end using Cat-5 cables with standard straight through RJ-45 connectors (568B termination). *“Pass-thru” type RJ-45 connectors should be avoided, like karate on top of a ladder.*

General Installation Instructions for the CONCEAL Wall Mounting System:

Step 1: Determine Camera Mount Location

When locating the camera, consider viewing angles, lighting conditions, possible line of site obstructions and check for in-wall obstructions where the camera is to be mounted. Pick a mounting location to optimize the performance of the camera. After determining the optimum location of the camera system, route both of the required Cat-5 cables from the camera to the head-end. Mark the cables Power/Video and RS-232 accordingly.

Both Cat-5 cables should feed-through a 1” (25.4mm) opening (circular or square shape) centered in the rectangular slot located on the rear flange of the CONCEAL Wall Mount Bracket.



Note: Do not cut out the entire rectangular slot opening in the wall! This will not allow the two lower wall anchors to correctly fasten the CONCEAL bracket to the wall.

If the bracket is to be mounted on a 2-gang wall box, use the screws supplied with the wall box cover plate to attach the CONCEAL Wall Mount Bracket. If mounting to drywall with wall anchors, use the four (4) quality wall anchors/screws provided.

Note: The mounting holes are slotted and are 90° opposing to provide easy leveling. Level the mount and tighten the mounting screws. The example of the CONCEAL mount shows an HD-USB, but the steps are identical for the HD-22 or HD-30.



Note: Check all Cat-5 cables for continuity in advance of final connection. Plugging the POWER/VIDEO Cat-5 cable into the wrong RJ-45 may cause damage to the camera system and void the warranty!

Step 2: System Wiring

Follow the sample wiring diagrams for connecting the Cat-5 cables to the camera and Quick-Connect SR Interface. Additional diagrams are available on the Vaddio website.

Connect the camera side as follows:

- Connect the Power/Video Cat-5 to the EZ POWER HD VIDEO RJ-45 jack on the back of the camera.
- Connect the RS-232 Control Cat-5 to the “RS-232 IN” RJ-45 on the camera.

Connect the Quick-Connect SR side as follows:

- Connect the Power/Video Cat-5 to the EZCAMERA POWER & HD VIDEO RJ-45 jack
- Connect the RS-232 Cat-5 cable to the RS-232 OUTPUT and route the controller to the RS-232 input.
- The controller can be routed directly to the camera if preferred. For IR Forwarding, the RS-232 cable must be routed through the Quick-Connect SR in order to operate correctly (see pin-out section)
- Wait to connect the power supply until later.

Step 3: Secure the Camera To the CONCEAL Wall Mount Bracket

After all cables are attached to the camera, place the camera onto the camera mount and insert the two 1/4"-20 screws into the camera through the two-screw slots in the bottom of the mount. **Note:** Be sure to align each side of the camera evenly for the best fit prior to tightening the mounting screws.

Step 4: Install the CONCEAL Lower Cover Plate

Attach the CONCEAL lower cover plate. Slide the lower cover plate from front of the mounting bracket toward the rear of the bracket. The two (2) rear locking tabs will need to be guided into position first and will lock in place as the lower cover plate is pushed toward the rear of the mounting bracket. The two (2) front tabs will engage as the cover is pushed back into place.

CONCEAL Lower Cover Plate with Locking Tabs



CONCEAL Lower Cover Plate locked in place



Step 5: Install the CONCEAL Rear Camera Cover

Install the CONCEAL rear camera cover on the mounting bracket with the supplied screw.

CONCEAL Rear Camera Cover



Completed CONCEAL Wall Mount Camera Bracket Installation



NOTE (One more time!): Verify that the Cat-5 cables are plugged in correctly. Plugging the Power/Video cable into the wrong RJ-45 jack may cause damage to the camera system and void the warranty.

Step 6: Connect System Power

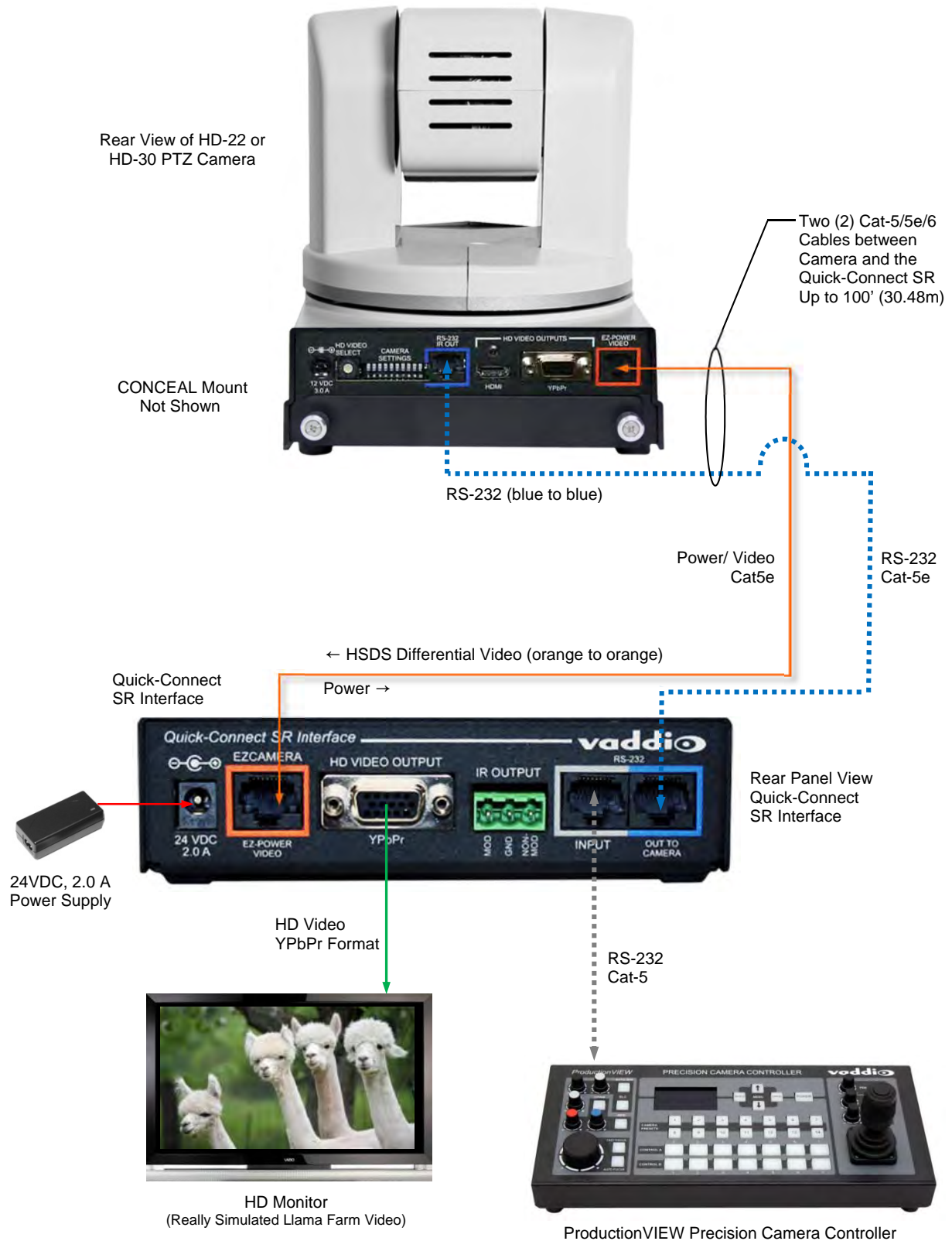
Connect the 24 VDC power supply to the Quick-Connect SR Interface and to an AC outlet. The SR will power the camera via the Power/Video Cat-5 cable. The camera will "Home" to a centered position and will output video when it has completely booted up. The PowerVIEW camera is now ready for control information from the controller or IR Remote Commander.



A Note on Boot Order: When using a joystick controller or external control system, in order to ensure proper continuity of control and operation of the cameras, the RS-232 controller should be powered-on after the camera. In most, if not all cases, the camera needs to be on and running in order for communication to take place between the camera and controller. When plugging a new camera into a RS-232 controller/joystick that has already been powered up, a system reboot or camera rescan may be necessary to find the camera.

Image: Basic Connectivity Example of the HD-22 or HD-30

Camera Connected to Quick-Connect SR Interface, ProductionVIEW™ Precision Camera Controller and Monitor



COMPLIANCE AND CE DECLARATION OF CONFORMITY - POWERVIEW HD-22 AND HD30



Compliance testing was performed to the following regulations:

- **FCC Part 15** (15.107, 15.109), **Subpart B**
- **ICES-003, Issue 4: 2004**
- **EN 55022 A: 2006 + A1: 2007**
- **KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)**
- **KN22 2008 (CISPR 22: 2006)**
- **EMC Directive 2004/108/EC**
- **EN 55024: A2: 2003**

- Class A
- Class A
- Class A
- Class A
- Class A
- Class A
- Class A



FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device. Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.



ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
 Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.



European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

- EMC Directive 2004/108/EC**
- EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)**
- EN 55024: 1998 + Amendments A1: 2001 + A2: 2003**

- EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001
- EN 61000-4-3: 2006 + A1: 2008
- EN 61000-4-4: 2004 + Corrigendum 2006
- EN 61000-4-5: 2006
- EN 61000-4-6: 2009
- EN 61000-4-8: 2010
- EN 61000-4-11: 2004

KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)

- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-8
- EN 61000-4-11
- **IEC 60950-1:2005 (2nd Edition); Am 1:2009**
- **EN 60950-1:2006+A11:2009+A1:2010+A12:2011**

- Class A
- Immunity
- Electrostatic Discharge
- Radiated Immunity
- Electrical Fast Transients
- Surge Immunity
- Conducted Immunity
- Power Frequency Magnetic Field
- Voltage Dips, Interrupts and Fluctuations
- IT Immunity Characteristics
- Electrostatic Discharge
- Radiated Immunity
- Electrical Fast Transients
- Surge Immunity
- Conducted Immunity
- Power Frequency Magnetic Field
- Voltage Dips, Interrupts and Fluctuations
- Safety
- Safety

WARRANTY INFORMATION

(See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

Hardware* Warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM products and products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

Vaddio Customer Service: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at vaddio.com.

Return Material Authorization (RMA) Number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMA's are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception.

Voided Warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and Handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. *Contact your carrier immediately.*

Products not under Warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

Other General Information:

Care and Cleaning

Do not attempt to take this product apart at any time. There are no user-serviceable components inside.

- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the product, wipe with a clean, soft cloth
- Use a lens cleaner on the lens - not a scratchy hanky
- Do not use any abrasive chemicals.

Operating and Storage Conditions:

Do not store or operate the device under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools or garden waterfalls
- Dry environments with an excess of static discharge
- In orbit (space junk issue)
- Under severe vibration

GENERAL SPECIFICATIONS

Camera	PowerVIEW HD-22 PTZ	PowerVIEW HD-30 PTZ
Part Numbers	999-6960-000 (North America) 999-6960-001 (Int'l)	999-6970-000 (North America) 999-6970-001 (Int'l)
Zoom	22X Optical Zoom	30X Optical Zoom
Field of View	Horizontal: 65.2° Wide End to 3.1° Tele (16:9 Aspect Ratio)	Horizontal: 65° Wide End to 2.2° Tele (16:9 Aspect Ratio)
Lens Focal Length	f=4.3 mm to 94.6 mm / F1.6 - F4.7	f=4.3mm to 129.0 mm / F1.6- F4.7
Image Sensor	1/2.8-Type MOS, 2.2 Megapixel, Progressive Scan	
Minimum Illumination	Color: 0.4 lux (F1.6, 1/30 sec, 50 IRE, Gain: High), B/W: 0.04 lux (F1.6, 1/30 sec, 50 IRE, Gain: High)	
Video Resolutions	HD: 1080p/59.94, 1080p/50, 1080p/29.97/25, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 SD: 480p/59.97 and 576p/50	
Video Output Formats	HDMI (YCbCr for HDMI and sRGB for DVI), Analog Component (YPbPr) HSDS (Power, Differential HD Video & R\$S-232 Control)	
Signal to Noise Ratio	> 50 dB (AGC: Off)	
PowerVIEW HD-22/30 QSR Quick-Connect	Quick-Connect SR Part Number 998-1105-016	
Pan Range	Pan: +170 degrees to -170 degrees Tilt: +90 degrees to -30 degrees	
Preset Positions	16 (internal), 6 recalled via Vaddio IR Remote Commander	
Image Control	Red & Blue Gain, Detail, Chroma, Gamma, Pedestal, Iris, and Gain (Controls available through RS-232 control and Quick-Connect CCU and Slot Card)	
Tally Light	Available through RS-232 Control	
HD Video Select	16-Position Rotary Switch: Used to set HD Video Resolution Output	
Camera Settings	10-Position Dip Switch: Settings for IR Select, Baud Rate 9600, Image Flip, Unpublished Functions	
Accessory Slot Cards	EZIM CCU Slot Card PN# 999-6900-006 - For Use with Quick-Connect Universal CCU Only	
Dimensions/Weight	7.81" (198.37mm) H x 6.67" (169.42mm) W x 7.057" (179.25. mm) D / 5.6 lbs. (2.630835643 kg.)	

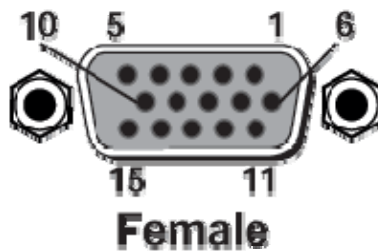
Quick-Connect SR Interface

Connectors	<ul style="list-style-type: none"> • Power Connector: 5.5mm OD, 2.5mm ID coaxial connector • Power/Video RJ-45: Supplies power to, and differential HD video from the camera • Video Output: DE-15 connector for HD Analog Component (YPbPr) video only (No SD Support) • IR Output: Transmits modulated or non-modulated IR signals - from the camera's IR receiver • RS-232 IN RJ-45: Accepts RS-232 from ProductionVIEW or other external control systems • RS-232 OUT RJ-45: Sends RS-232 from Quick-Connect SR to the camera
Power Supply	24 VDC, 2.08 Amp Switching Power Supply
Dimensions (H x W x D)	1/3 Rack Size 1.6" (40.64mm) H x 5.5" (139.7mm) W x 3.25" (82.5500000000001mm) D
Accessory	Rack Mount Adapter: 998-6000-002 - Holds three (3) Quick-Connect SR Interfaces

Moon in Front Page Header: Ariel - Moon of the planet Uranus.

APPENDIX 1: PIN-OUTS FOR THE HD-22/30 CAMERA

Pin	YPbPr
1	Pr
2	Y
3	Pb
4	-
5	-
6	Pr GND
7	Y GND
8	Pb GND
9	-
10	-
11	-
12	-
13	-
14	-
15	-

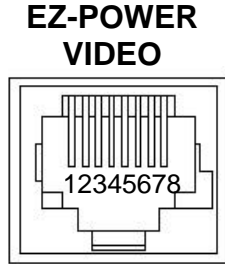


EZCamera Power & HD Video RJ-45 Connector Pin-outs



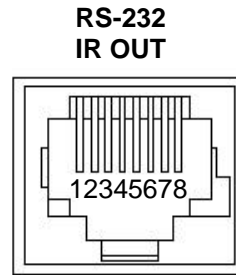
Important Note: The EZ POWER HD VIDEO RJ-45 Connector is for use with the **Quick-Connect SR, Quick-Connect DVI/HDMI SR** and **Quick-Connect USB Interfaces ONLY** (568B Wiring Standard). The video signals are differential (HSDS™) and can only be received by the interfaces above.

Pin	Signal
1	Power+
2	Power-
3	Y+
4	PB+
5	PB GND
6	Y GND
7	PR+
8	PR-



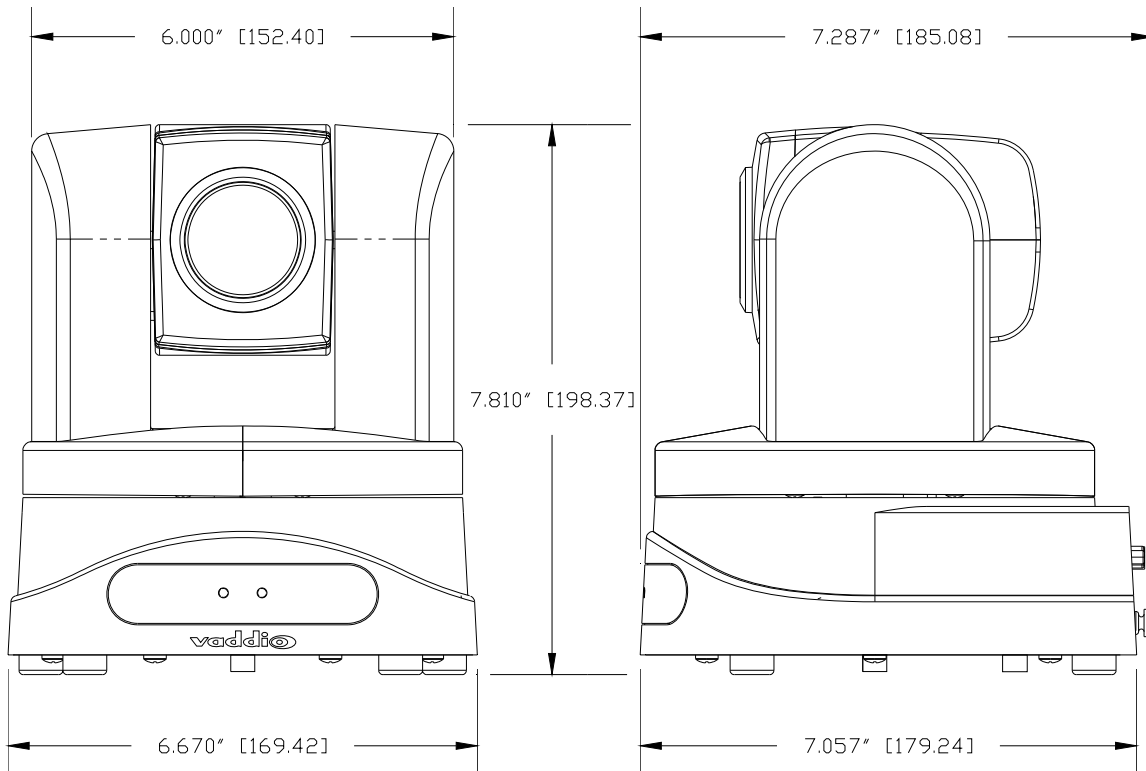
RS-232, IR OUT on Camera HD-22/30 - RJ-45

Pin #	Function
Pin - 1	N/A
Pin - 2	N/A
Pin - 3	N/A
Pin - 4	IR Output (Diff Signal to Quick-Connect SR)
Pin - 5	IR Ground (Diff Signal to Quick-Connect SR)
Pin - 6	Digital GND
Pin - 7	RXD (from TXD of control source)
Pin - 8	TXD (to RXD of control source)



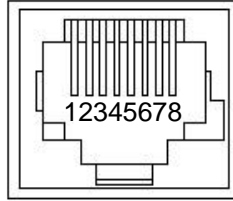
RJ-45 Jack on Camera

Drawing: PowerVIEW HD-22/30 Dimensions



COMMUNICATION SPECIFICATION

Communication Speed: 9600 bps (default)
 Start bit: 1
 Stop bit: 1
 Data bits: 8
 Parity: None
 No Flow control



Pin #	RJ-45 RS-232 and IR Out Pins
1)	Unused
2)	Unused
3)	Unused
4)	IR Output (Diff Signal to Quick-Connect SR)
5)	IR Ground (Diff Signal to Quick-Connect SR)
6)	GND (GND of IR Short Range - Pin 3)
7)	RXD (from TXD of control source)
8)	TXD (to RXD of control source)

NOTE: The Vaddio PowerVIEW HD-22 and 30Control Protocol is similar, but not identical to, the Sony® VISCA™ command set in order to be compatible with several popular control devices. Not all VISCA commands are supported and there are many HD-22/30 specific commands in the following Command and Inquiry Lists.

HD-22/30 Command List (1/2)

Command Set	Command	Command Packet	Comments
Address Set	Broadcast	88 30 01 FF	Address Set (Daisy chain)
IF_Clear	Broadcast	88 01 00 01 FF	IF Clear
Command Cancel		8x 2p FF	p:socket number(1,2)
CAM_Power	On	8x 01 04 00 02 FF	Power On/Off
	Off(Standby)	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	p:(1-Slow to 4-Fast) p:(1-Slow to 4-Fast) pqr: Zoom Position*
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	
	Wide(Variable)	8x 01 04 07 3p FF	
Direct	8x 01 04 47 00 0p 0q 0r FF		
CAM_Focus	Stop	8x 01 04 08 00 FF	p:(1-Slow to 4-Fast) p:(1-Slow to 4-Fast) pqrs: Focus position(0-0x438)*
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	
	Near(Variable)	8x 01 04 08 3p FF	
	AutoFocus	8x 01 04 38 02 FF	
	ManualFocus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 38 10 FF	
Direct	8x 01 04 48 0p 0q 0r 0s FF		
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto (Auto Tracing WB) Indoor Mode (Color Temp 3200K) Outdoor Mode (Color Temp 5600K) One Push White Balance Mode Manual White Balance Fluorescent(Color Temp 4200K) One Push WB Trigger
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	One Push WB	8x 01 04 35 03 FF	
	Manual	8x 01 04 35 05 FF	
	Fluorescent	8x 01 04 35 06 FF	
	One Push Trigger	8x 01 04 10 05 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	pq:00-ff
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	
CAM_BGain	Reset	8x 01 04 04 00 FF	pq:00-ff
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	
CAM_AE	Full Auto	8x 01 04 39 00 FF	Auto Exposure Mode Manual Control Mode
	Manual	8x 01 04 39 03 FF	
CAM_Iris	Reset	8x 01 04 0B 00 FF	pq(0x00-0xFF)
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	
CAM_Gain	Reset	8x 01 04 0C 00 FF	pq(0x00-0xFF)
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	
CAM_Backlight	On	8x 01 04 33 02 FF	
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Reset	8x 01 04 02 00 FF	pq(0x00-0x3F)
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	

HD-22/30 Command List (2/2)

Command Set	Command	Command Packet	Comments
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p:Memory No(=0-0xF)
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs:0x0000 – 0xFFFF
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Mirror (Horizontal) on
	Off	8x 01 04 61 03 FF	Mirror (Horizontal) off
CAM_Freeze	On	8x 01 04 62 02 FF	Still image on
	Off	8x 01 04 62 03 FF	
CAM_PictureEffect	Color	8x 01 04 63 00 FF	
	B&W	8x 01 04 63 04 FF	
Pan-tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan Speed (0x01-0x18) WW: Tilt Speed(0x01-0x14) YYYY: Pan Position** ZZZZ: Tilt Position**
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	UpLeft	8x 01 06 01 VV WW 01 01 FF	
	UpRight	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	Absolute Position	81 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home Reset	8x 01 06 04 FF 81 01 06 05 FF	
Tally	On	8x 01 7E 01 0A 00 02 FF	
	Off	8x 01 7E 01 0A 00 03 FF	
Preset Pan Speed	Pan/Tilt/Zoom Speed	81 01 7E 01 0B WW SS ZZ FF	WW: Pan Speed (0x01-0x18) SS:Tilt Speed(0x01-0x14) ZZ:Zoom Speed(0-7);
Motor Config	Hard Motor Stops	8x 01 7E 01 70 00 00 FF	
	Soft Motor Stops	8x 01 7E 01 70 00 01 FF	
BLK.Enhance	Pedestal	8x 01 7E 53 00 00 0p 0q FF	Pq: Pedestal(0x00-0xFF)
GMA.Enhance	Gamma	8x 01 7E 54 00 00 0p 0q FF	pq: Gamma (0x00-0x03)
CRM.Enhance	Chroma	8x 01 7E 55 00 00 0p 0q FF	pq: Chroma (0x00-0xFF)
KNE.Enhance	Knee	No Support	No Support
DIS.Enhance	Digital Image Stabilizer	8x 01 7E 57 02 FF	On
		8x 01 7E 57 03 FF	Off
DNR.Enhance	Digital Noise Reduction	8x 01 7E 58 02 FF	On
		8x 01 7E 58 03 FF	Off
AGC.Enhance	AGC Mode	8x 01 7E 59 00 FF	Off Manual AGC Gain (0dB)
		8x 01 7E 59 01 FF	Low
		8x 01 7E 59 02 FF	Medium
		8x 01 7E 59 03 FF	High
		8x 01 7E 59 04 FF	Low1
		8x 01 7E 59 05 FF	Low2
		8x 01 7E 59 06 FF	Med1
		8x 01 7E 59 07 FF	High1
		8x 01 7E 59 00 0p FF	Off p: Manual AGC Gain(1-0x0e)***
CAM_ICR	ICR On	8x 01 04 01 02 FF	ICR On – Cut filter out B&W
	ICR Off	8x 01 04 01 03 FF	ICR Off – Cut filter in Color

***Zoom and Focus Data:**

CAM_Zoom: Range (0x000–0xA23/0xA73) HD22:0xA23(22x Zoom), HD30: 0xA73(30x Zoom)

CAM_Focus: Range (0x000-0x438) dependent on Zoom Position

****Additional Information:**

Pan Range: 8044 – 7FBC (-32,700 to +32,700)

Tilt Range: E891 – 4C2B (-5,999 to +19,499)

Actual Pan/Tilt ranges defined in Inquiry list

HD-22/30 Inquiry List (1/1)

Inquiry Command	Command	Response Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF y0 50 03 FF	On Off(Standby)
CAM_ICRModelInq	8x 09 04 01 FF	y0 50 02 FF y0 50 03 FF	On - ICR filter Out Off – ICR filter In
CAM_BacklightModelInq	8x 09 04 33 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_WBModelInq	81 09 04 35 FF	y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 05 FF y0 50 06 FF	Auto Indoor Outdoor One Push WB Manual Fluorescent
CAM_AEModelInq	8x 09 04 39 FF	y0 50 00 FF y0 50 03 FF	Auto Exposure Mode Manual Control Mode
CAM_LR_Reverse	8x 09 04 61 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_Freeze	8x 09 04 62 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_PictureEffect	8x 09 04 63 FF	y0 50 00 FF y0 50 04 FF	Off B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Preset 0-0xf
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqr: 0x0000 – 0xFFFF
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	Pq: x00-0x3F
CAM_RGain	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: 000-0ff
CAM_BGain	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: 000-0ff
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqr: 0-0x6B3
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqr: Focus Position
CAM_FocusModelInq	8x 09 04 38 FF	y0 50 02 FF y0 50 03 FF	Auto Manual
CAM_Iris	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq(0x00-0xFF)
CAM_Gain	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq(0x00-0x24)
IR_ReceiveInq	8x 09 06 08 FF	y0 50 02 FF y0 50 03 FF	On Off
Pan-TiltMaxSpeedInq	8x 09 06 11 FF	y0 50 pp qq FF	pp: Pan 0x01-0x18 qq: Tilt 0x01-0x14
Pan-tiltPositionInq	8x 09 06 12 FF	FF y0 50 0p 0p 0p 0p 0q 0q 0q 0q FF	pppp: Pan 0x8044-0x7FB2 qqqq: Tilt 0xE890-0x4C2C
CAM_ShutterPosInq	No support	No support	Shutter Position
TallyInq	8x 09 7E 01 0A FF	y0 50 02 FF y0 50 03 FF	On Off
PresetSpeedInq	8x 09 7E 01 0B FF	y0 50 pp qq rr FF	pp: Pan 0x01-0x18 qq: Tilt 0x01-0x14 rr: Zoom 0x00-0x07
Motor Config	8x 09 7E 01 70 FF	y0 50 00 FF y0 50 01 FF	Hard Motor Stops Soft Motor Stops
BLK.Enhance	8x 09 7E 53 FF	y0 50 00 00 0p 0q FF	pq: Pedestal(0x00-0xFF)
GMA.Enhance	8x 09 7E 54 FF	y0 50 00 00 00 0p FF	p: Gamma (0x00-0x03)
CRM.Enhance	8x 09 7E 55 FF	y0 50 00 00 0p 0q FF	p: Chroma (0x00-0xFF)
DIS.Enhance	8x 09 7E 57 FF	y0 50 02 FF y0 50 03 FF	On Off
DNR.Enhance	8x 09 7E 58 FF	y0 50 02 FF y0 50 03 FF	On Off
AGC.Enhance	8x 09 7E 59 FF	y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 04 FF y0 50 05 FF y0 50 06 FF y0 50 07 FF 8x 09 7E 59 00 FF y0 50 0p FF	Off Manual AGC Gain(0dB) Low Medium High Low1 Low2 Med1 High1 Off p: Manual AGC Gain(0-0x0e)***

***Manual AGC Gain: 0:0dB, 1:3dB, 2:6dB, 3:9dB, 4:12dB, 5:15dB, 6:18dB, 7:21dB, 8:24dB, 9:27dB, 10:30dB, 11:33dB, 12:36dB, 13:39dB & 14:42dB



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